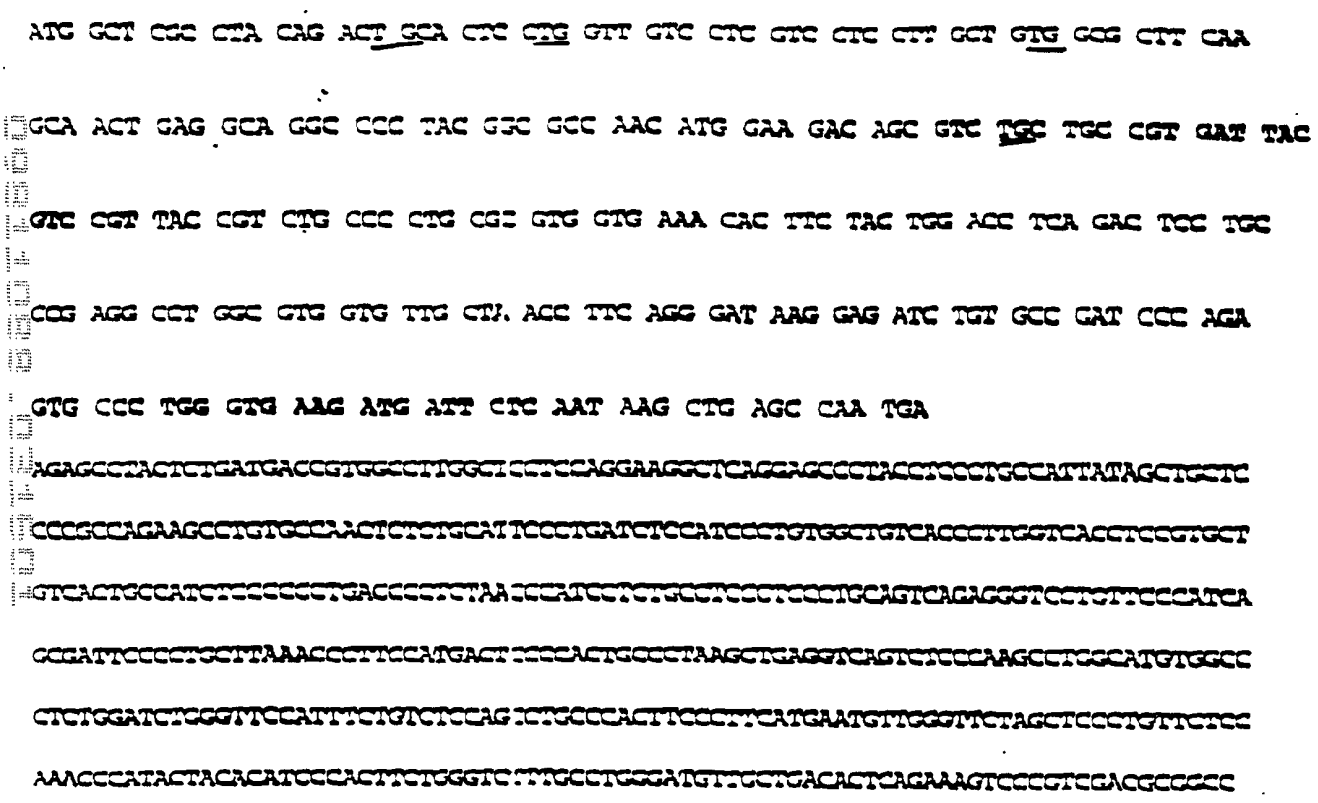
ATG GCT CGC CTA CAG ACT GCA CTC CTG GTT GTC CTC GTC CTC CTT GCT GTG GCG CTT CAA
GCA ACT GAG GCA GGC CCC TAC GGC GCC AAC ATG GAA GAC AGC GTC TGC TGC CGT GAT TAC
GTC CGT TAC CGT CTG CCC CTG CGC GTG GTG AAA CAC TTC TAC TGG ACC TCA GAC TCC TGC
CCG AGG CCT GGC GTG GTG TTG CTA ACC TTC AGG GAT AAG GAG ATC TGT GCC GAT CCC AGA
GTG CCC TGG GTG AAG ATG ATT CTC AAT AAG CTG AGC CAA TGA

FIG. 1

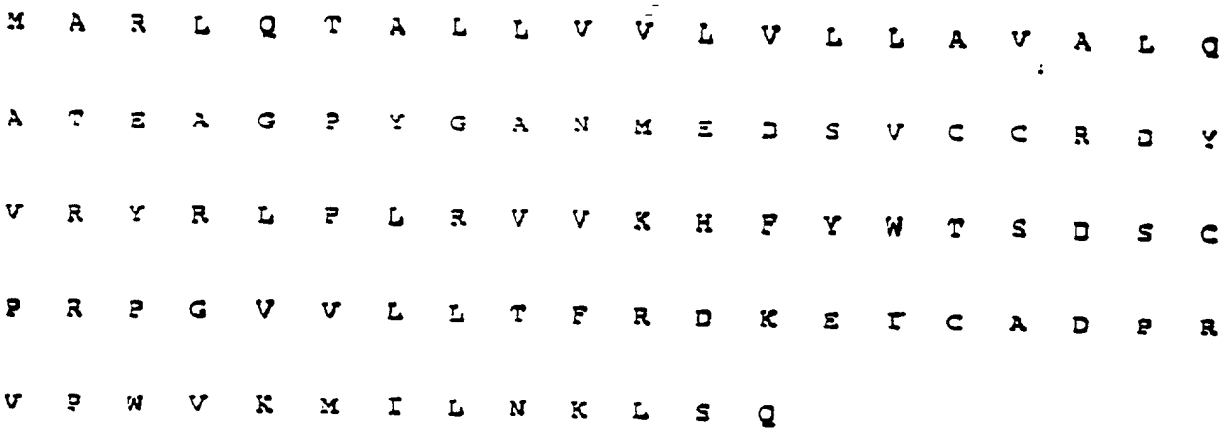
M A R L Q T A L L V V L V L L A V A L Q
A T E A G P Y G A N M E D S V C C R D Y
V R Y R L P L R V V K H F Y W T S D S C
P R P G V V L L T F R D K E I C A D P R
V P W V K M I L N K L S Q

FIG. 2

GTCGACCCACGCGTCCGGCCGGAGAACCCGCAATCTTTGCGCCCACAAAATACACCGACGATGCCCGATCTACTTTAAG 79

M E Q R G Q N 7
GGCTGAAACCCACGGGCCTGAGAGACTATAAGAGCGTTCCCTACCGCC ATG GAA CAA CGG GGA CAG AAC 148

A P A A S G A R K R H G P G P R E A R G 27
GCC CCG GCC GCT TCG GGG GCC CGG AAA AGG CAC GGC CCA GGA CCC AGG GAG GCG CGG GGA 208

A R P G L R V P K T L V L V V A A V L L 47
GCC AGG CCT GGG CTC CGG GTC CCC AAG ACC CTT GTG CTC GTT GTC GCC GCG GTC CTG CTG 268

L V S A E S A L I T Q Q D L A P Q Q R A 67
TTG GTC TCA GCT GAG TCT GCT CTG ATC ACC CAA CAA GAC CTA GCT CCC CAG CAG AGA GCG 328

A P Q Q K R S S P S E G L C P P G H H I 87
GCC CCA CAA CAA AAG AGG TCC AGC CCC TCA GAG GGA TTG TGT CCA CCT GGA CAC CAT ATC 388

S E D G R D C I S C K Y G Q D Y S T H W 107
TCA GAA GAC GGT AGA GAT TGC ATC TCC TGC AAA TAT GGA CAG GAC TAT AGC ACT CAC TGG 448

N D L L F C L R C T R C D S G E V E L S 127
AAT GAC CTC CTT TTC TGC TTG CGC TGC ACC AGG TGT GAT TCA GGT GAA GTG GAG CTA AGT 508

P C T T T R N T V C Q C E E G T F R E E 147
CCC TGC ACC ACG ACC AGA AAC ACA GTG TGT CAG TGC GAA GAA GGC ACC TTC CGG GAA GAA 568

D S P E M C R K C R T G C P R G M V K V 167
GAT TCT CCT GAG ATG TGC CGG AAG TGC CGC ACA GGG TGT CCC AGA GGG ATG GTC AAG GTC 628

G D C T P W S D I E C V H K E S G T K H 187
GGT GAT TGT ACA CCC TGG AGT GAC ATC GAA TGT GTC CAC AAA GAA TCA GGT ACA AAG CAC 688

S G E A P A V E E T V T S S P G T P A S 207
AGT GGG GAA GCC CCA GCT GTG GAG GAG ACG GTG ACC TCC AGC CCA GGG ACT CCT GCC TCT 748

P C S L S G I I I G V T V A A V V L I V 227
CCC TGT TCT CTC TCA GGC ATC ATC ATA GGA GTC ACA GTT GCA GCC GTA GTC TTG ATT GTG 808

A V F V C K S L L W K K V L P Y L K G I 247
GCT GTG TTT GTT TGC AAG TCT TTA CTG TGG AAG AAA GTC CTT CCT TAC CTG AAA GGC ATC 868

C S G G G G D P E R V D R S S Q R P G A 267
TGC TCA GGT GGT GGT GGG GAC CCT GAG CGT GTG GAC AGA AGC TCA CAA CGA CCT GGG GCT 928

E D N V L N E I V S I L Q P T Q V P E Q 287
GAG GAC AAT GTC CTC AAT GAG ATC GTG AGT ATC TTG CAG CCC ACC CAG GTC CCT GAG CAG 988

E M E V Q E P A E P T G V N M L S P G E 307
GAA ATG GAA GTC CAG GAG CCA GCA GAG CCA ACA GGT GTC AAC ATG TTG TCC CCC GGG GAG 1048

S E H L L E P A E A E R S Q R R R L L V 327
TCA GAG CAT CTG CTG GAA CCG GCA GAA GCT GAA AGG TCT CAG AGG AGG AGG CTG CTG GTT 1108

P A N E G D P T E T L R Q C F D D F A D 347
CCA GCA AAT GAA GGT GAT CCC ACT GAG ACT CTG AGA CAG TGC TTC GAT GAC TTT GCA GAC 1168

L V P F D S W E P L M R K L G L M D N E 367
TTG GTG CCC TTT GAC TCC TGG GAG CCG CTC ATG AGG AAG TTG GGC CTC ATG GAC AAT GAG 1228

FIG. 3 (1 of 3)

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 I  K  V  A  K  A  E  A  A  G  H  R  D  T  L  Y  T  M  L  I   387
ATA AAG GTG GCT AAA GCT GAG GCA GCG GGC CAC AGG GAC ACC TTG TAC ACG ATG CTG ATA  1288

 K  W  V  N  K  T  G  R  D  A  S  V  H  T  L  L  D  A  L  E   407
AAG TGG GTC AAC AAA ACC GGG CGA GAT GCC TCT GTC CAC ACC CTG CTG GAT GCC TTG GAG  1348

 T  L  G  E  R  L  A  K  Q  K  I  E  D  H  L  L  S  S  G  K   427
ACG CTG GGA GAG AGA CTT GCC AAG CAG AAG ATT GAG GAC CAC TTG TTG AGC TCT GGA AAG  1408

 F  M  Y  L  E  G  N  A  D  S  A  M  S  *                     441
TTC ATG TAT CTA GAA GGT AAT GCA GAC TCT GCC ATG TCC TAA                        1450

GTGTGATTCTCTTCAGGAAGTGAGACCTTCCCTGGTTTACCTTTTTTCTGGAAAAAGCCCAACTGGACTCCAGTCAGTA  1529

GGAAAGTGCCACAATTGTCACATGACCGGTACTGGAAGAAACTCTCCCATCCAACATCACCCAGTGGATGGAACATCCT  1608

GTAACTTTTCACTGCACTTGGCATTATTTTTATAAGCTGAATGTGATAATAAGGACACTATGGAAATGTCTGGATCATT  1687

CCGTTTGTGCGTACTTTGAGATTTGGTTTGGGATGTCATTGTTTTCACAGCACTTTTTTATCCTAATGTAAATGCTTTA  1766

TTTATTTATTTGGGCTACATTGTAAGATCCATCTACACAGTCGTTGTCCGACTTCACTTGATACTATATGATATGAACC  1845

TTTTTTGGGTGGGGGGTGCNGGGCAATTCCACTCTGTCTCCCAGGCTGGAGTGCAATGGTGCAATCTTGGCTCACTATA  1924

GCCTTGACCTCTGAGGCTCAAGCGATTCTCTCACCTCAGCCATCCAAATAGCTGGGACCACAGGTGTGCACCACCACGC  2003

CCGGCTAATTTTTTGTATTTTGTCTAAATATAAGGGCTCTCTATGTTGCTCAGGGTGGTCTCGAATTCCTGGACTCAAG  2082

CAGTCTGCCCACYTCAGACTCCCAAAGCGGTGGAATTAGARGCGTGAGCCCCCATGCTTGGCCTTACCTTTCTACYTTT  2161

TATAATTCTGTATGTTATTATTTTATGAACATGAAGAAACTTTAGTAAATGTACTTGTTTACATAGTTATGTGAATAGA  2240

TTAGATAAACATAAAAGGAGGAGACATACAATGGGGGAAGAAGAAGAAGTCCCCTGTAAGAAGTTNACGNTCTGGTTTC  2319

CAGCCTTCCCTCAGATGTACTTTGGCTTCAATGATTGGCAACTTCTACAGGGGCCAGTCTTTTGAACTGGACAACCTTA  2398

CAAGTATATGAGTATTATTTATAGGTAGTTGTTTACATATGAGTCGGGACCAAAGAGAACTGGATCCACGTGAAGTCCT  2477

GTGTGTGGCTGGTCCCTACCTGGGCAGTCTCATTTGCACCCATAGCCCCCATCTATGGACAGGCTGGGACAGAGGCAGA  2556

TGGGTTAGATCACACATAACAATAGGGTCTATGTCATATCCCAAGTGAACTTGAGCCCTGTTTGGGCTCAGGAGATAGA  2635

AGACAAAATCTGTCTCCCACGTCTGCCATGGCATCAAGGGGGAAGAGTAGATGGTGCTTGAGAATGGTGTGAAATGGTT  2714

GCCATCTCAGGAGTAGATGGCCCGGCTCACTTCTGGTTATCTGTCACCCTGAGCCCATGAGCTGCCTTTTAGGGTACAG  2793

ATTGCCTACTTGAGGACCTTGGCCGCTCTGTAAGCATCTGACTCATCTCAGAAATGTCAATTCTTAAACACTGTGGCAA  2872

CAGGACCTAGAATGGCTGACGCATTAAGGTTTTCTTCTTGTGTCCTGTTCTATTATTGTTTTAAGACCTCAGTAACCAT  2951

TTCAGCCTCTTTCCAGCAAACCCTTCTCCATAGTATTTCAGTCATGGAAGGATCATTTATGCAGGTAGTCATTCCAGGA  3030

GTTTTTGGTCTTTTCTGTCTCAAGGCATTGTGTGTTTTGTTCCGGGACTGGTTTGGGTGGGACAAAGTTAGAATTGCCT  3109

GAAGATCACACATTCAGACTGTTGTGTCTGTGGAGTTTTAGGAGTGGGGGGTGACCTTTCTGGTCTTTGCACTTCCATC  3188

CTCTCCCACTTCCATCTGGCATCCCACGCGTTGTCCCCTGCACTTCTGGAAGGCACAGGGTGCTGCTGCCTCCTGGTCT  3267
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FIG. 3 (2 of 3)

TTGCCTTTGCTGGGCCTTCTGTGCAGGACGCTCAGCCTCAGGGCTCAGAAGGTGCCAGTCCGGTCCCAGGTCCCTTGTC 3346

CCTTCCACAGAGGCCTTCCTAGAAGATGCATCTAGAGTGTCAGCCTTATCAGTGTTTAAGATTTTTCTTTTATTTTTAA 3425

TTTTTTTGAGACAGAATCTCACTCTCTCGCCCAGGCTGGAGTGCAACGGTACGATCTTGGCTCAGTGCAACCTCCGCCT 3504

CCTGGGTTCAAGCGATTCTCGTGCCTCAGCCTCCGGAGTAGCTGGGATTGCAGGCACCCGCCACCACGCCTGGTTAATT 3583

TTTGTATTTTTAGTAGAGACGGGGTTTCACCATGTTGGTCAGGCTGGTCTCGAACTCCTGACCTCAGGTGATCCACCTT 3662

GGCCTCCGAAAGTGCTGGGATTACAGGCGTGAGCCACCAGCCAGGCCAAGCTATTCTTTTAAAGTAAGCTTCCTGACGA 3741

CATGAAATAATTGGGGGTTTTGTTGTTTAGTTACATTAGGCTTTGCTATATCCCCAGGCCAAATAGCATGTGACACAGG 3820

ACAGCCATAGTATAGTGTGTCACTCGTGGTTGGTGTCCTTTCATGCTTCTGCCCTGTCAAAGGTCCCTATTTGAAATGT 3899

GTTATAATACAAACAAGGAAGCACATTGTGTACAAAATACTTATGTATTTATGAATCCATGACCAAATTAAATATGAAA 3978

CCTTATATAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAGGSGGCGGCCGC 4051

FIG. 3 (3 of 3)

GTCGACCCACGCGTCCGGCCGGAGAACCCGCAATCTTTGCGCCCACAAAATACACCGACGATGCCCGATCTACTTTAAG 79

M E Q R G Q N 7
GGCTGAAACCCACGGGCCTGAGAGACTATAAGAGCGTTCCCTACCGCC ATG GAA CAA CGG GGA CAG AAC 148

A P A A S G A R K R H G P G P R E A R G 27
GCC CCG GCC GCT TCG GGG GCC CGG AAA AGG CAC GGC CCA GGA CCC AGG GAG GCG CGG GGA 208

A R P G L R V P K T L V L V V A A V L L 47
GCC AGG CCT GGG CTC CGG GTC CCC AAG ACC CTT GTG CTC GTT GTC GCC GCG GTC CTG CTG 268

L V S A E S A L I T Q Q D L A P Q Q R A 67
TTG GTC TCA GCT GAG TCT GCT CTG ATC ACC CAA CAA GAC CTA GCT CCC CAG CAG AGA GCG 328

A P Q Q K R S S P S E G L C P P G H H I 87
GCC CCA CAA CAA AAG AGG TCC AGC CCC TCA GAG GGA TTG TGT CCA CCT GGA CAC CAT ATC 388

S E D G R D C I S C K Y G Q D Y S T H W 107
TCA GAA GAC GGT AGA GAT TGC ATC TCC TGC AAA TAT GGA CAG GAC TAT AGC ACT CAC TGG 448

N D L L F C L R C T R C D S G E V E L S 127
AAT GAC CTC CTT TTC TGC TTG CGC TGC ACC AGG TGT GAT TCA GGT GAA GTG GAG CTA AGT 508

P C T T T R N T V C Q C E E G T F R E E 147
CCC TGC ACC ACG ACC AGA AAC ACA GTG TGT CAG TGC GAA GAA GGC ACC TTC CGG GAA GAA 568

D S P E M C R K C R T G C P R G M V K V 167
GAT TCT CCT GAG ATG TGC CGG AAG TGC CGC ACA GGG TGT CCC AGA GGG ATG GTC AAG GTC 628

G D C T P W S D I E C V H K E S G I I I 187
GGT GAT TGT ACA CCC TGG AGT GAC ATC GAA TGT GTC CAC AAA GAA TCA GGC ATC ATC ATA 688

G V T V A A V V L I V A V F V C K S L L 207
GGA GTC ACA GTT GCA GCC GTA GTC TTG ATT GTG GCT GTG TTT GTT TGC AAG TCT TTA CTG 748

W K K V L P Y L K G I C S G G G G D P E 227
TGG AAG AAA GTC CTT CCT TAC CTG AAA GGC ATC TGC TCA GGT GGT GGT GGG GAC CCT GAG 808

R V D R S S Q R P G A E D N V L N E I V 247
CGT GTG GAC AGA AGC TCA CAA CGA CCT GGG GCT GAG GAC AAT GTC CTC AAT GAG ATC GTG 868

S I L Q P T Q V P E Q E M E V Q E P A E 267
AGT ATC TTG CAG CCC ACC CAG GTC CCT GAG CAG GAA ATG GAA GTC CAG GAG CCA GCA GAG 928

P T G V N M L S P G E S E H L L E P A E 287
CCA ACA GGT GTC AAC ATG TTG TCC CCC GGG GAG TCA GAG CAT CTG CTG GAA CCG GCA GAA 988

A E R S Q R R R L L V P A N E G D P T E 307
GCT GAA AGG TCT CAG AGG AGG AGG CTG CTG GTT CCA GCA AAT GAA GGT GAT CCC ACT GAG 1048

T L R Q C F D D F A D L V P F D S W E P 327
ACT CTG AGA CAG TGC TTC GAT GAC TTT GCA GAC TTG GTG CCC TTT GAC TCC TGG GAG CCG 1108

L M R K L G L M D N E I K V A K A E A A 347
CTC ATG AGG AAG TTG GGC CTC ATG GAC AAT GAG ATA AAG GTG GCT AAA GCT GAG GCA GCG 1168

G H R D T L Y T M L I K W V N K T G R D 367
GGC CAC AGG GAC ACC TTG TAC ACG ATG CTG ATA AAG TGG GTC AAC AAA ACC GGG CGA GAT 1228

FIG. 4 (1 of 3)

```
 A  S  V  H  T  L  L  D  A  L  E  T  L  G  E  R  L  A  K  Q   387
GCC TCT GTC CAC ACC CTG CTG GAT GCC TTG GAG ACG CTG GGA GAG AGA CTT GCC AAG CAG  1288

 K  I  E  D  H  L  L  S  S  G  K  F  M  Y  L  E  G  N  A  D   407
AAG ATT GAG GAC CAC TTG TTG AGC TCT GGA AAG TTC ATG TAT CTA GAA GGT AAT GCA GAC  1348

 S  A  M  S  *                                                412
TCT GCC ATG TCC TAA                                           1363

GTGTGATTCTCTTCAGGAAGTGAGACCTTCCCTGGTTTACCTTTTTTTCTGGAAAAAGCCCAACTGGACTCCAGTCAGTA  1442

GGAAAGTGCCACAATTGTCACATGACCGGTACTGGAAGAAACTCTCCCATCCAACATCACCCAGTGGATGGAACATCCT  1521

GTAACTTTTCACTGCACTTGGCATTATTTTTATAAGCTGAATGTGATAATAAGGACACTATGGAAATGTCTGGATCATT  1600

CCGTTTGTGCGTACTTTGAGATTTGGTTTGGGATGTCATTGTTTTCACAGCACTTTTTTATCCTAATGTAAATGCTTTA  1679

TTTATTTATTTGGGCTACATTGTAAGATCCATCTACACAGTCGTTGTCCGACTTCACTTGATACTATATGATATGAACC  1758

TTTTTTGGGTGGGGGGTGCNGGGCAATTCCACTCTGTCTCCCAGGCTGGAGTGCAATGGTGCAATCTTGGCTCACTATA  1837

GCCTTGACCTCTGAGGCTCAAGCGATTCTCTCACCTCAGCCATCCAAATAGCTGGGACCACAGGTGTGCACCACCACGC  1916

CCGGCTAATTTTTTGTATTTTGTCTAAATATAAGGGCTCTCTATGTTGCTCAGGGTGGTCTCGAATTCCTGGACTCAAG  1995

CAGTCTGCCCACYTCAGACTCCCAAAGCGGTGGAATTAGARGCGTGAGCCCCCATGCTTGGCCTTACCTTTCTACYTTT  2074

TATAATTCTGTATGTTATTATTTTATGAACATGAAGAAACTTTAGTAAATGTACTTGTTTACATAGTTATGTGAATAGA  2153

TTAGATAAACATAAAAGGAGGAGACATACAATGGGGGAAGAAGAAGAAGTCCCCTGTAAGAAGTYNACGNTCTGGTTTC  2232

CAGCCTTCCCTCAGATGTACTTTGGCTTCAATGATTGGCAACTTCTACAGGGGCCAGTCTTTTGAACTGGACAACCTTA  2311

CAAGTATATGAGTATTATTTATAGGTAGTTGTTTACATATGAGTCGGGACCAAAGAGAACTGGATCCACGTGAAGTCCT  2390

GTGTGTGGCTGGTCCCTACCTGGGCAGTCTCATTTGCACCCATAGCCCCCATCTATGGACAGGCTGGGACAGAGGCAGA  2469

TGGGTTAGATCACACATAACAATAGGGTCTATGTCATATCCCAAGTGAACTTGAGCCCTGTTTGGGCTCAGGAGATAGA  2548

AGACAAAATCTGTCTCCCACGTCTGCCATGGCATCAAGGGGGAAGAGTAGATGGTGCTTGAGAATGGTGTGAAATGGTT  2627

GCCATCTCAGGAGTAGATGGCCCGGCTCACTTCTGGTTATCTGTCACCCTGAGCCCATGAGCTGCCTTTTAGGGTACAG  2706

ATTGCCTACTTGAGGACCTTGGCCGCTCTGTAAGCATCTGACTCATCTCAGAAATGTCAATTCTTAAACACTGTGGCAA  2785

CAGGACCTAGAATGGCTGACGCATTAAGGTTTTCTTCTTGTGTCCTGTTCTATTATTGTTTTAAGACCTCAGTAACCAT  2864

TTCAGCCTCTTTCCAGCAAACCCTTCTCCATAGTATTTCAGTCATGGAAGGATCATTTATGCAGGTAGTCATTCCAGGA  2943

GTTTTTGGTCTTTTCTGTCTCAAGGCATTGTGTGTTTTGTTCCGGGACTGGTTTGGGTGGGACAAAGTTAGAATTGCCT  3022

GAAGATCACACATTCAGACTGTTGTGTCTGTGGAGTTTTAGGAGTGGGGGGTGACCTTTCTGGTCTTTGCACTTCCATC  3101

CTCTCCCACTTCCATCTGGCATCCCACGCGTTGTCCCCTGCACTTCTGGAAGGCACAGGGTGCTGCTGCCTCCTGGTCT  3180

TTGCCTTTGCTGGGCCTTCTGTGCAGGACGCTCAGCCTCAGGGCTCAGAAGGTGCCAGTCCGGTCCCAGGTCCCTTGTC  3259
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FIG. 4 (2 of 3)

CCTTCCACAGAGGCCTTCCTAGAAGATGCATCTAGAGTGTCAGCCTTATCAGTGTTTAAGATTTTTCTTTTATTTTTAA 3338

TTTTTTTGAGACAGAATCTCACTCTCTCGCCCAGGCTGGAGTGCAACGGTACGATCTTGGCTCAGTGCAACCTCCGCCT 3417

CCTGGGTTCAAGCGATTCTCGTGCCTCAGCCTCCGGAGTAGCTGGGATTGCAGGCACCCGCCACCACGCCTGGTTAATT 3496

TTTGTATTTTTAGTAGAGACGGGGTTTCACCATGTTGGTCAGGCTGGTCTCGAACTCCTGACCTCAGGTGATCCACCTT 3575

GGCCTCCGAAAGTGCTGGGATTACAGGCGTGAGCCACCAGCCAGGCCAAGCTATTCTTTTAAAGTAAGCTTCCTGACGA 3654

CATGAAATAATTGGGGGTTTTGTTGTTTAGTTACATTAGGCTTTGCTATATCCCCAGGCCAAATAGCATGTGACACAGG 3733

ACAGCCATAGTATAGTGTGTCACTCGTGGTTGGTGTCCTTTCATGCTTCTGCCCTGTCAAAGGTCCCTATTTGAAATGT 3812

GTTATAATACAAACAAGGAAGCACATTGTGTACAAAATACTTATGTATTTATGAATCCATGACCAAATTAAATATGAAA 3891

CCTTATATAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAGGSGGCGGCCGC 3964

FIG. 4 (3 of 3)

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CCACGCGTCCGCGCGGGCGCTGCGCTGAGGGGACGGCGGGAGGCGCGGCCTGGCCTCGCACTCAAAGCCGCCGCAGCGC   79

GCCCCGGGCTCGGCCGACCCGGCGGGGATCTAGGGGTGGGCGACTTCGCGGGACCGTGGCGCATGTTTCCTGGGAGTTA  158

                          M  K  L  H  Y  V  A  V  L  T  L  A  I  L   14
CTGATCATCTTCTTTGAAGAAAC ATG AAG TTA CAC TAT GTT GCT GTG CTT ACT CTA GCC ATC CTG  223

 M  F  L  T  W  L  P  E  S  L  S  C  N  K  A  L  C  A  S  D   34
ATG TTC CTG ACA TGG CTT CCA GAA TCA CTG AGC TGT AAC AAA GCA CTC TGT GCT AGT GAT  283

 V  S  K  C  L  I  Q  E  L  C  Q  C  R  P  G  E  G  N  C  S   54
GTG AGC AAA TGC CTC ATT CAG GAG CTC TGC CAG TGC CGG CCG GGA GAA GGC AAT TGC TCC  343

 C  C  K  E  C  M  L  C  L  G  A  L  W  D  E  C  C  D  C  V   74
TGC TGT AAG GAG TGC ATG CTG TGT CTT GGG GCC CTT TGG GAC GAG TGC TGT GAC TGT GTT  403

 G  M  C  N  P  R  N  Y  S  D  T  P  P  T  S  K  S  T  V  E   94
GGT ATG TGT AAT CCT CGA AAT TAT AGT GAC ACA CCT CCA ACT TCA AAG AGC ACA GTG GAG  463

 E  L  H  E  P  I  P  S  L  F  R  A  L  T  E  G  D  T  Q  L  114
GAG CTG CAT GAA CCG ATC CCT TCT CTC TTC CGG GCA CTC ACA GAA GGA GAT ACT CAG TTG  523

 N  W  N  I  V  S  F  P  V  A  E  E  L  S  H  H  E  N  L  V  134
AAT TGG AAC ATC GTT TCT TTC CCT GTT GCA GAA GAA CTT TCA CAT CAT GAG AAT CTG GTT  583

 S  F  L  E  T  V  N  Q  P  H  H  Q  N  V  S  V  P  S  N  N  154
TCA TTT TTA GAA ACT GTG AAC CAG CCA CAC CAC CAG AAT GTG TCT GTC CCC AGC AAT AAT  643

 V  H  A  P  Y  S  S  D  K  E  H  M  C  T  V  V  Y  F  D  D  174
GTT CAC GCG CCT TAT TCC AGT GAC AAA GAA CAC ATG TGT ACT GTG GTT TAT TTT GAT GAC  703

 C  M  S  I  H  Q  C  K  I  S  C  E  S  M  G  A  S  K  Y  R  194
TGC ATG TCC ATA CAT CAG TGT AAA ATA TCC TGT GAG TCC ATG GGA GCA TCC AAA TAT CGC  763

 W  F  H  N  A  C  C  E  C  I  G  P  E  C  I  D  Y  G  S  K  214
TGG TTT CAT AAT GCC TGC TGC GAG TGC ATT GGT CCA GAA TGT ATT GAC TAT GGT AGT AAA  823

 T  V  K  C  M  N  C  M  F  *                                 224
ACT GTC AAA TGT ATG AAC TGC ATG TTT TAA                       853

AGAAGACAAATGCAAACCAAAGCAACTTAGTAAAATAATAGGTATAAAAAGTTATTCTGTAAGTCTGTTGGTTGTATCT  932

TGTATCAGAATCCCAGTAAGTTAAGTTGTAAAGACTTTGGAATAAGTTTCTTTTAAAAATATGACATAGCCAGTGATGT  1011

GTTTAATTATATAACTGTTCTTACTGATTTTATTGCCCCCTAGCAATAAGCCCTTTCCTTTGAATACATGTACAACTTT  1090

GGTCATATGAGAAGCAGGTGCGCAGAGAATTCCTTGAAAGATCTGAGGTTTTTAACATGAAGTCTGATGTGGTTTTCCT  1169

CTAGCATTCCAAAAGGTTTTTGCTTTGAAAGTGTTAGCAGAAGCATGTTGATGTGAATTATGATTTCTTCATGTGCTAC  1248

TGTTAGCACACTGAGTTTTTATAGTTGCACATCATTCCTCATTGTGCCTTGTTTTATCCATTTTATAAATAGAGTAGAT  1327

ATTTGATATACCACTCTGATAACTCATATAAAAATATCATCATAAAAAGCTTAATTTCATCCCTTTTATGTTGGTTTTA  1406

AAAGGTAAATGCTTACCATATTTTATAATTGAGAACTCTTACATAGTAGAATCCATTCTATAATACATGTGTTGACAAA  1485

GCTTTAGAGAAAGTTTCCTATTCTCTTCCATTTCCCCTGCCCAAAGTGCTGACATAGGCAGTGATGAAGAATCTTTACC  1564
```

FIG. 5 (1 of 2)

AAGATTTTCAGGGTGTACCTATGAAATTGCTTTAAATGCACTGCTGGTGTAAATAATTAGCAAGCAAAAGCGTTTCTGT 1643

GACTTCAGGTACCAGCTTAAAGAGCACTAGGGATGGGGAACGAATGCCAAATCAGACTCCACCTAGAGCACCAGGAAAC 1722

AGCTTGTACCCTGGTAGGGAAATGGTGTTGCTGAAAGGGGAGGCTGAGCCAGTGCGAGACTGAACTTGTGCAGCCTTAG 1801

CCAAGACAAAGCAGTGTTTTTCAGCAGACGGCTGATGGGACAGGAATTGAAGAAGAGAATTGACTCGTATGAACAGGAC 1880

AGGGTGAAAATGCTGGGAATTATAATGGGAAACAAAACTATCTATGTTCATATTTTGTAATATTTCATTTGTTAAGTTT 1959

ATATCTGGATATAATGTTCTTTTTAAACAAGTATAATCATATCGTCGGAGGTTAAGATTATGAAATTTTAGAATCTCTA 2038

TTCAAGATGATGTTCACTCCAAATACACTACAGAATTTAGTCAACATTTTATATAATGTTTCAATAAATGTTTCTTTCA 2117

ATAAAAAAAAAAAAAAAA 2135

FIG. 5 (2 of 2)

```
M  P  S  L  P  A  P  P  A  P  L  L  L  L  G  L  L  L  L  G     20
ATG CCG AGC CTC CCG GCC CCG CCG GCC CCG CTG CTG CTC CTC GGG CTG CTG CTG CTC GGC    60

S  R  P  A  R  G  A  G  P  E  P  P  V  L  P  I  R  S  E  K     40
TCC CGG CCG GCC CGC GGC GCC GGC CCA GAG CCC CCC GTG CTG CCC ATC CGT TCT GAG AAG   120

E  P  L  P  V  R  G  A  A  G  C  T  F  G  G  K  V  Y  A  L     60
GAG CCG CTG CCC GTT CGG GGA GCG GCA GGC TGC ACC TTC GGC GGG AAG GTC TAT GCC TTG   180

D  E  T  W  H  P  D  L  G  E  P  F  G  V  M  R  C  V  L  C     80
GAC GAG ACG TGG CAC CCG GAC CTA GGG GAG CCA TTC GGG GTG ATG CGC TGC GTG CTG TGC   240

A  C  E  A  P  Q  W  G  R  R  T  R  G  P  G  R  V  S  C  K    100
GCC TGC GAG GCG CCT CAG TGG GGT CGC CGT ACC AGG GGC CCT GGC AGG GTC AGC TGC AAG   300

N  I  K  P  E  C  P  T  P  A  C  G  Q  P  R  Q  L  P  G  H    120
AAC ATC AAA CCA GAG TGC CCA ACC CCG GCC TGT GGG CAG CCG CGC CAG CTG CCG GGA CAC   360

C  C  Q  T  C  P  Q  E  R  S  S  S  E  R  Q  P  S  G  L  S    140
TGC TGC CAG ACC TGC CCC CAG GAG CGC AGC AGT TCG GAG CGG CAG CCG AGC GGC CTG TCC   420

F  E  Y  P  R  D  P  E  H  R  S  Y  S  D  R  G  E  P  G  A    160
TTC GAG TAT CCG CGG GAC CCG GAG CAT CGC AGT TAT AGC GAC CGC GGG GAG CCA GGC GCT   480

E  E  R  A  R  G  D  G  H  T  D  F  V  A  L  L  T  G  P  R    180
GAG GAG CGG GCC CGT GGT GAC GGC CAC ACG GAC TTC GTG GCG CTG CTG ACA GGG CCG AGG   540

S  Q  A  V  A  R  A  R  V  S  L  L  R  S  S  L  R  F  S  I    200
TCG CAG GCG GTG GCA CGA GCC CGA GTC TCG CTG CTG CGC TCT AGC CTC CGC TTC TCT ATC   600

S  Y  R  R  L  D  R  P  T  R  I  R  F  S  D  S  N  G  S  V    220
TCC TAC AGG CGG CTG GAC CGC CCT ACC AGG ATC CGC TTC TCA GAC TCC AAT GGC AGT GTC   660

L  F  E  H  P  A  A  P  T  Q  D  G  L  V  C  G  V  W  R  A    240
CTG TTT GAG CAC CCT GCA GCC CCC ACC CAA GAT GGC CTG GTC TGT GGG GTG TGG CGG GCA   720

V  P  R  L  S  L  R  L  L  R  A  E  Q  L  H  V  A  L  V  T    260
GTG CCT CGG TTG TCT CTG CGG CTC CTT AGG GCA GAA CAG CTG CAT GTG GCA CTT GTG ACA   780

L  T  H  P  S  G  E  V  W  G  P  L  I  R  H  R  A  L  A  A    280
CTC ACT CAC CCT TCA GGG GAG GTC TGG GGG CCT CTC ATC CGG CAC CGG GCC CTG GCT GCA   840

E  T  F  S  A  I  L  T  L  E  G  P  P  Q  Q  G  V  G  G  I    300
GAG ACC TTC AGT GCC ATC CTG ACT CTA GAA GGC CCC CCA CAG CAG GGC GTA GGG GGC ATC   900

T  L  L  T  L  S  D  T  E  D  S  L  H  F  L  L  L  F  R  G    320
ACC CTG CTC ACT CTC AGT GAC ACA GAG GAC TCC TTG CAT TTT TTG CTG CTC TTC CGA GGG   960

L  L  E  P  R  S  G  G  L  T  Q  V  P  L  R  L  Q  I  L  H    340
CTG CTG GAA CCC AGG AGT GGG GGA CTA ACC CAG GTT CCC TTG AGG CTC CAG ATT CTA CAC  1020

Q  G  Q  L  L  R  E  L  Q  A  N  V  S  A  Q  E  P  G  F  A    360
CAG GGG CAG CTA CTG CGA GAA CTT CAG GCC AAT GTC TCA GCC CAG GAA CCA GGC TTT GCT  1080

E  V  L  P  N  L  T  V  Q  E  M  D  W  L  V  L  G  E  L  Q    380
GAG GTG CTG CCC AAC CTG ACA GTC CAG GAG ATG GAC TGG CTG GTG CTG GGG GAG CTG CAG  1140
```

FIG. 6 (1 of 3)

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 M  A  L  E  W  A  G  R  P  G  L  R  I  S  G  H  I  A  A  R      400
ATG GCC CTG GAG TGG GCA GGC AGG CCA GGG CTG CGC ATC AGT GGA CAC ATT GCT GCC AGG  1200

 K  S  C  D  V  L  Q  S  V  L  C  G  A  D  A  L  I  P  V  Q      420
AAG AGC TGC GAC GTC CTG CAA AGT GTC CTT TGT GGG GCT GAT GCC CTG ATC CCA GTC CAG  1260

 T  G  A  A  G  S  A  S  L  T  L  L  G  N  G  S  L  I  Y  Q      440
ACG GGT GCT GCC GGC TCA GCC AGC CTC ACG CTG CTA GGA AAT GGC TCC CTG ATC TAT CAG  1320

 V  Q  V  V  G  T  S  S  E  V  V  A  M  T  L  E  T  K  P  Q      460
GTG CAA GTG GTA GGG ACA AGC AGT GAG GTG GTG GCC ATG ACA CTG GAG ACC AAG CCT CAG  1380

 R  R  D  Q  R  T  V  L  C  H  M  A  G  L  Q  P  G  G  H  T      480
CGG AGG GAT CAG CGC ACT GTC CTG TGC CAC ATG GCT GGA CTC CAG CCA GGA GGA CAC ACG  1440

 A  V  G  I  C  P  G  L  G  A  R  G  A  H  M  L  L  Q  N  E      500
GCC GTG GGT ATC TGC CCT GGG CTG GGT GCC CGA GGG GCT CAT ATG CTG CTG CAG AAT GAG  1500

 L  F  L  N  V  G  T  K  D  F  P  D  G  E  L  R  G  H  V  A      520
CTC TTC CTG AAC GTG GGC ACC AAG GAC TTC CCA GAC GGA GAG CTT CGG GGG CAC GTG GCT  1560

 A  L  P  Y  C  G  H  S  A  R  H  D  T  L  S  V  P  L  A  G      540
GCC CTG CCC TAC TGT GGG CAT AGC GCC CGC CAT GAC ACG CTG TCC GTG CCC CTA GCA GGA  1620

 A  L  V  L  P  P  V  K  S  Q  A  A  G  H  A  W  L  S  L  D      560
GCC CTG GTG CTA CCC CCT GTG AAG AGC CAA GCA GCA GGG CAC GCC TGG CTT TCC TTG GAT  1680

 T  H  C  H  L  H  Y  E  V  L  L  A  G  L  G  G  S  E  Q  G      580
ACC CAC TGT CAC CTG CAC TAT GAA GTG CTG CTG GCT GGG CTT GGT GGC TCA GAA CAA GGC  1740

 T  V  T  A  H  L  L  G  P  P  G  T  P  G  P  R  R  L  L  K      600
ACT GTC ACT GCC CAC CTC CTT GGG CCT CCT GGA ACG CCA GGG CCT CGG CGG CTG CTG AAG  1800

 G  F  Y  G  S  E  A  Q  G  V  V  K  D  L  E  P  E  L  L  R      620
GGA TTC TAT GGC TCA GAG GCC CAG GGT GTG GTG AAG GAC CTG GAG CCG GAA CTG CTG CGG  1860

 H  L  A  K  G  M  A  S  L  M  I  T  T  K  G  S  P  R  G  E      640
CAC CTG GCA AAA GGC ATG GCC TCC CTG ATG ATC ACC ACC AAG GGT AGC CCC AGA GGG GAG  1920

 L  R  G  Q  R  R  T  V  I  C  D  P  V  V  C  P  P  P  S  C      660
CTC CGA GGG CAG AGA CGA ACG GTG ATC TGT GAC CCG GTG GTG TGC CCA CCG CCC AGC TGC  1980

 P  H  P  V  Q  A  P  D  Q  C  C  P  V  C  P  E  K  Q  D  V      680
CCA CAC CCG GTG CAG GCT CCC GAC CAG TGC TGC CCT GTT TGC CCT GAG AAA CAA GAT GTC  2040

 R  D  L  P  G  L  P  R  S  R  D  P  G  E  G  C  Y  F  D  G      700
AGA GAC TTG CCA GGG CTG CCA AGG AGC CGG GAC CCA GGA GAG GGC TGC TAT TTT GAT GGT  2100

 D  R  S  W  R  A  A  G  T  R  W  H  P  V  V  P  P  F  G  L      720
GAC CGG AGC TGG CGG GCA GCG GGT ACG CGG TGG CAC CCC GTT GTG CCC CCC TTT GGC TTA  2160

 I  K  C  A  V  C  T  C  K  G  G  T  G  E  V  H  C  E  K  V      740
ATT AAG TGT GCT GTC TGC ACC TGC AAG GGG GGC ACT GGA GAG GTG CAC TGT GAG AAG GTG  2220

 Q  C  P  R  L  A  C  A  Q  P  V  R  V  N  P  T  D  C  C  K      760
CAG TGT CCC CGG CTG GCC TGT GCC CAG CCT GTG CGT GTC AAC CCC ACC GAC TGC TGC AAA  2280
```

FIG. 6 (2 of 3)

```
 Q  C  P  V  G  S  G  A  H  P  Q  L  G  D  P  M  Q  A  D  G   780
CAG TGT CCA GTG GGG TCG GGG GCC CAC CCC CAG CTG GGG GAC CCC ATG CAG GCT GAT GGG  2340

 P  R  G  C  R  F  A  G  Q  W  F  P  E  S  Q  S  W  H  P  S   800
CCC CGG GGC TGC CGT TTT GCT GGG CAG TGG TTC CCA GAG AGT CAG AGC TGG CAC CCC TCA  2400

 V  P  P  F  G  E  M  S  C  I  T  C  R  C  G  A  G  V  P  H   820
GTG CCC CCT TTT GGA GAG ATG AGC TGT ATC ACC TGC AGA TGT GGG GCA GGG GTG CCT CAC  2460

 C  E  R  D  D  C  S  L  P  L  S  C  G  S  G  K  E  S  R  C   840
TGT GAG CGG GAT GAC TGT TCA CTG CCA CTG TCC TGT GGC TCG GGG AAG GAG AGT CGA TGC  2520

 C  S  R  C  T  A  H  R  R  P  A  P  E  T  R  T  D  P  E  L   860
TGT TCC CGC TGC ACG GCC CAC CGG CGG CCA GCC CCA GAG ACC AGA ACT GAT CCA GAG CTG  2580

 E  K  E  A  E  G  S  *                                        868
GAG AAA GAA GCC GAA GGC TCT TAG                                2604

GGAGCAGCCAGAGGGCCAAGTGACCAAGAGGATGGGGCCTGAGCTGGGGAAGGGGTGGCATCGAGGACCTTCTTGCATT  2683

CTCCTGTGGGAAGCCCAGTGCCTTTGCTCCTCTGTCCTGCCTCTACTCCCACCCCCACTACCTTTGGGAACCACAGCTC  2762

CACAAGGGGGAGAGGCAGCTGGGCCAGACCGAGGTCACAGCCACTCCAAGTCCTGCCCTGCCACCCTCGGCCTCTGTCC  2841

TTGGAAGCCCCACCCCTTTCCTCCTGTACATAATGTCACTGGCTTGTTGGGATTTTTAATTTATCTTCACTCAGCACCA  2920

AGGGCCCCCGACACTCCACTCCTGCTGCCCCTGAGCTGAGCAGAGTCATTATTGGAGAGTTTTGTATTTATTAAAACAT  2999

TTCTTTTTCAGTCAAAAAAAAAAAAAAAGGGCGGCCGC                         3037
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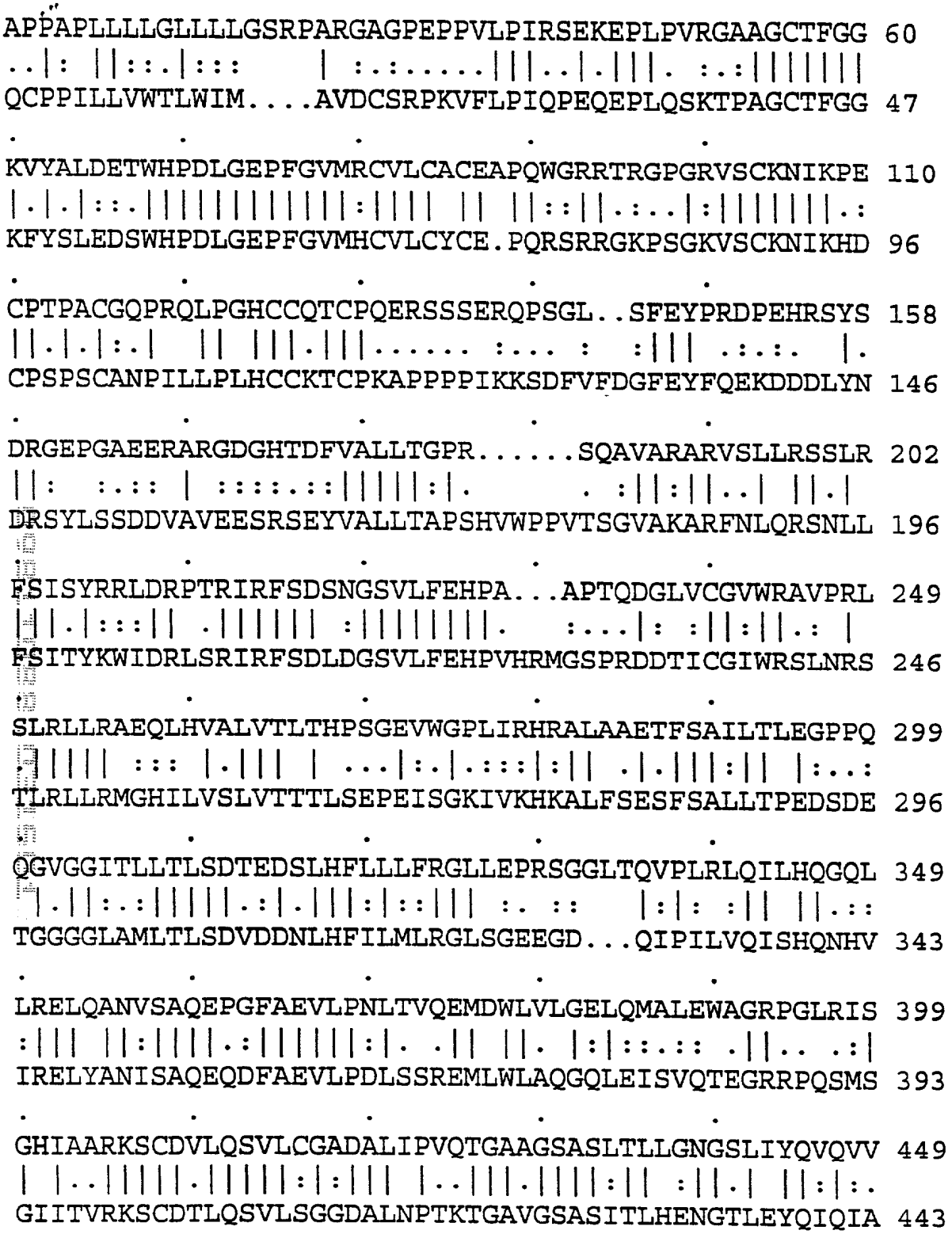
FIG. 6 (3 of 3)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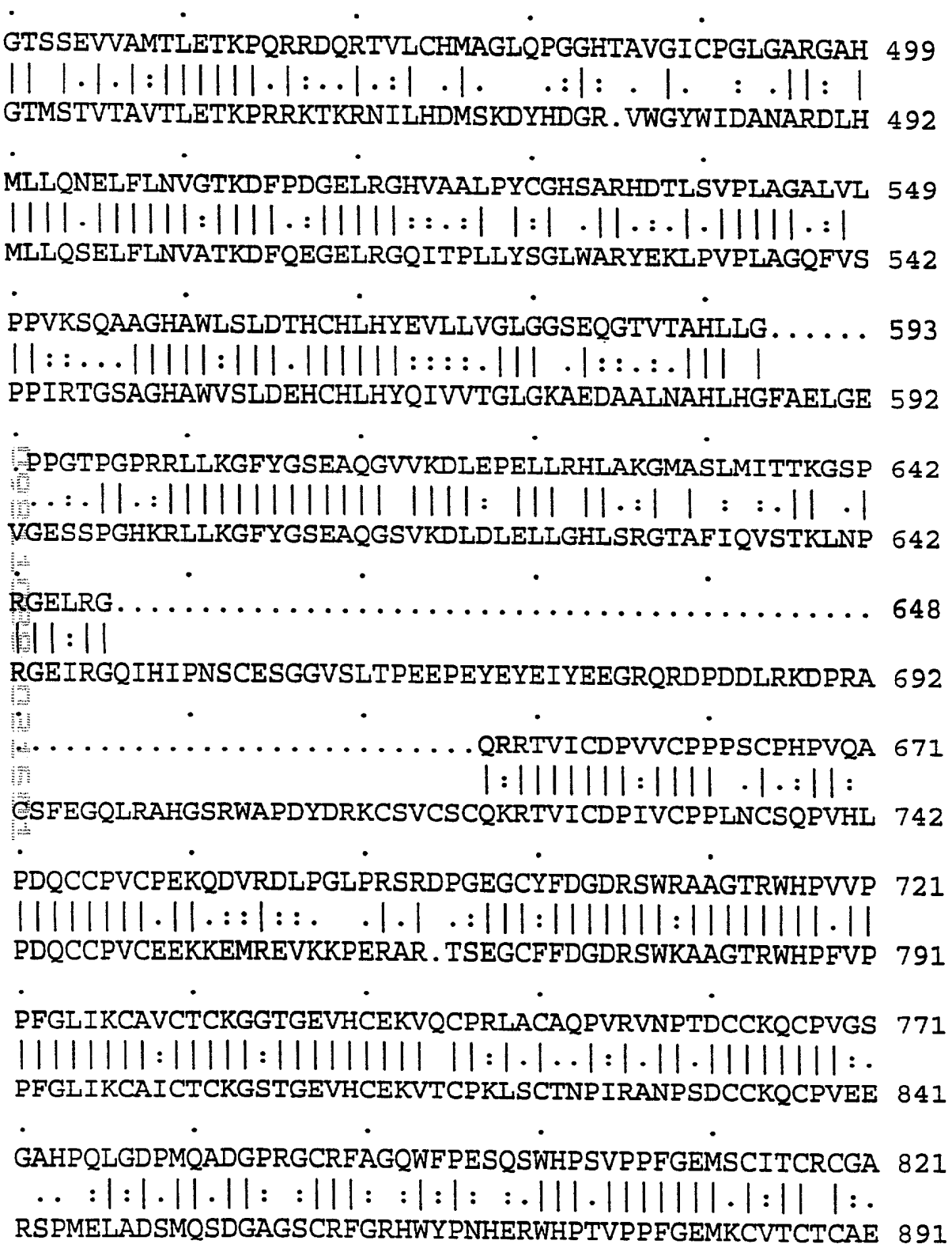
KFYSLEDSWHPDLGEPFGVMHCVLCYCE.PQRSRRGKPSGKVSCKNIKHD 96
CPTPACGQPRQLPGHCCQTCPQERSSSERQPSGL..SFEYPRDPEHRSYS 158
CPSPSCANPILLPLHCCKTCPKAPPPPIKKSDFVFDGFEYFQEKDDDLYN 146
DRGEPGAEERARGDGHTDFVALLTGPR......SQAVARARVSLLRSSLR 202
DRSYLSSDDVAVEESRSEYVALLTAPSHVWPPVTSGVAKARFNLQRSNLL 196
FSISYRRLDRPTRIRFSDSNGSVLFEHPA...APTQDGLVCGVWRAVPRL 249
FSITYKWIDRLSRIRFSDLDGSVLFEHPVHRMGSPRDDTICGIWRSLNRS 246
SLRLLRAEQLHVALVTLTHPSGEVWGPLIRHRALAAETFSAILTLEGPPQ 299
TLRLLRMGHILVSLVTTTLSEPEISGKIVKHKALFSESFSALLTPEDSDE 296
QGVGGITLLTLSDTEDSLHFLLLFRGLLEPRSGGLTQVPLRLQILHQGQL 349
TGGGGLAMLTLSDVDDNLHFILMLRGLSGEEGD...QIPILVQISHQNHV 343
LRELQANVSAQEPGFAEVLPNLTVQEMDWLVLGELQMALEWAGRPGLRIS 399
IRELYANISAQEQDFAEVLPDLSSREMLWLAQGQLEISVQTEGRRPQSMS 393
GHIAARKSCDVLQSVLCGADALIPVQTGAAGSASLTLLGNGSLIYQVQVV 449
GIITVRKSCDTLQSVLSGGDALNPTKTGAVGSASITLHENGTLEYQIQIA 443

FIG. 7 (1 of 3)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GTMSTVTAVTLETKPRRKTKRNILHDMSKDYHDGR.VWGYWIDANARDLH 492
MLLQNELFLNVGTKDFPDGELRGHVAALPYCGHSARHDTLSVPLAGALVL 549
MLLQSELFLNVATKDFQEGELRGQITPLLYSGLWARYEKLPVPLAGQFVS 542
PPVKSQAAGHAWLSLDTHCHLHYEVLLVGLGGSEQGTVTAHLLG..... 593
PPIRTGSAGHAWVSLDEHCHLHYQIVVTGLGKAEDAALNAHLHGFAELGE 592
PPGTPGPRRLLKGFYGSEAQGVVKDLEPELLRHLAKGMASLMITTKGSP 642
VGESSPGHKRLLKGFYGSEAQGSVKDLDLELLGHLSRGTAFIQVSTKLNP 642
RGELRG..... 648
RGEIRGQIHIPNSCESGGVSLTPEEPEYEYEIYEEGRQRDPDDLRKDPRA 692
.....QRRTVICDPVVCPPPSCPHPVQA 671
CSFEGQLRAHGSRWAPDYDRKCSVCSCQKRTVICDPIVCPPLNCSQPVHL 742
PDQCCPVCPEKQDVRDLPGLPRSRDPGEGCYFDGDRSWRAAGTRWHPVVP 721
PDQCCPVCEEKKEMREVKKPERAR.TSEGCFFDGDRSWKAAGTRWHPFVP 791
PFGLIKCAVCTCKGGTGEVHCEKVQCPRLACAQPVRVNPTDCCKQCPVGS 771
PFGLIKCAICTCKGSTGEVHCEKVTCPKLSCTNPIRANPSDCCKQCPVEE 841
GAHPQLGDPMQADGPRGCRFAGQWFPESQSWHPSVPPFGEMSCITCRCGA 821
RSPMELADSMQSDGAGSCRFGRHWYPNHERWHPTVPPFGEMKCVTCTCAE 891

FIG. 7 (2 of 3)

```
GVPHCERDDCSLPLSCGSGKESRCCSRC......TAHRRPAPETRTDPEL 865
|:.:| |::|. . :..::| .|||.:|      ...: ...||||. .:
GITQCRRQECTGTTCGTGSKRDRCCTKCKDANQDEDEKVKSDETRTPWSF 941
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FIG. 7 (3 of 3)